FIG. 1

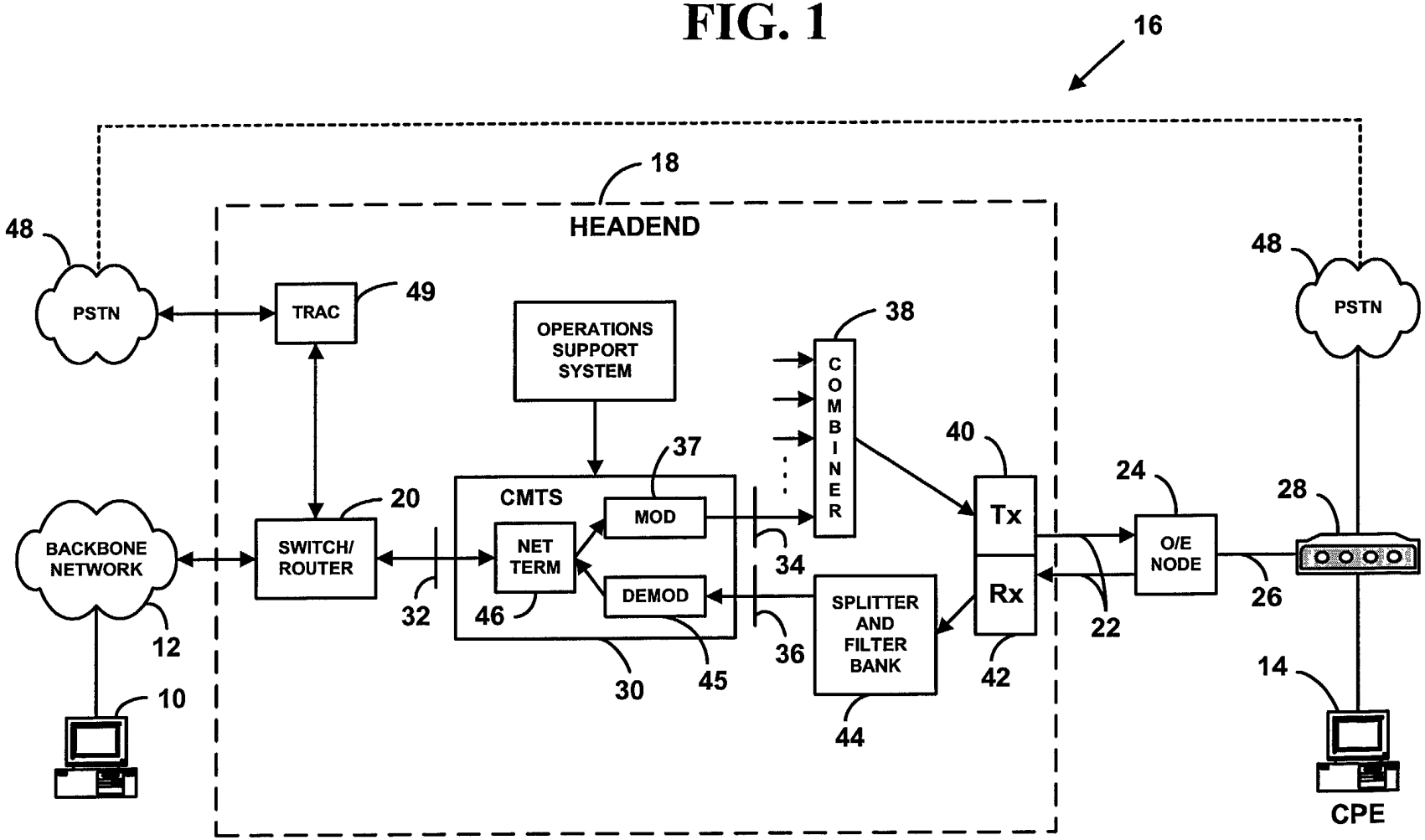

16
18
HEADEND
48
PSTN
TRAC
49
OPERATIONS SUPPORT SYSTEM
38
COMBINER
40
37
CMTS
MOD
NET TERM
DEMOD
20
SWITCH/ ROUTER
BACKBONE NETWORK
12
10
32
46
30
45
34
36
SPLITTER AND FILTER BANK
44
Tx
Rx
42
22
24
O/E NODE
26
28
48
PSTN
14
CPE

FIG. 2

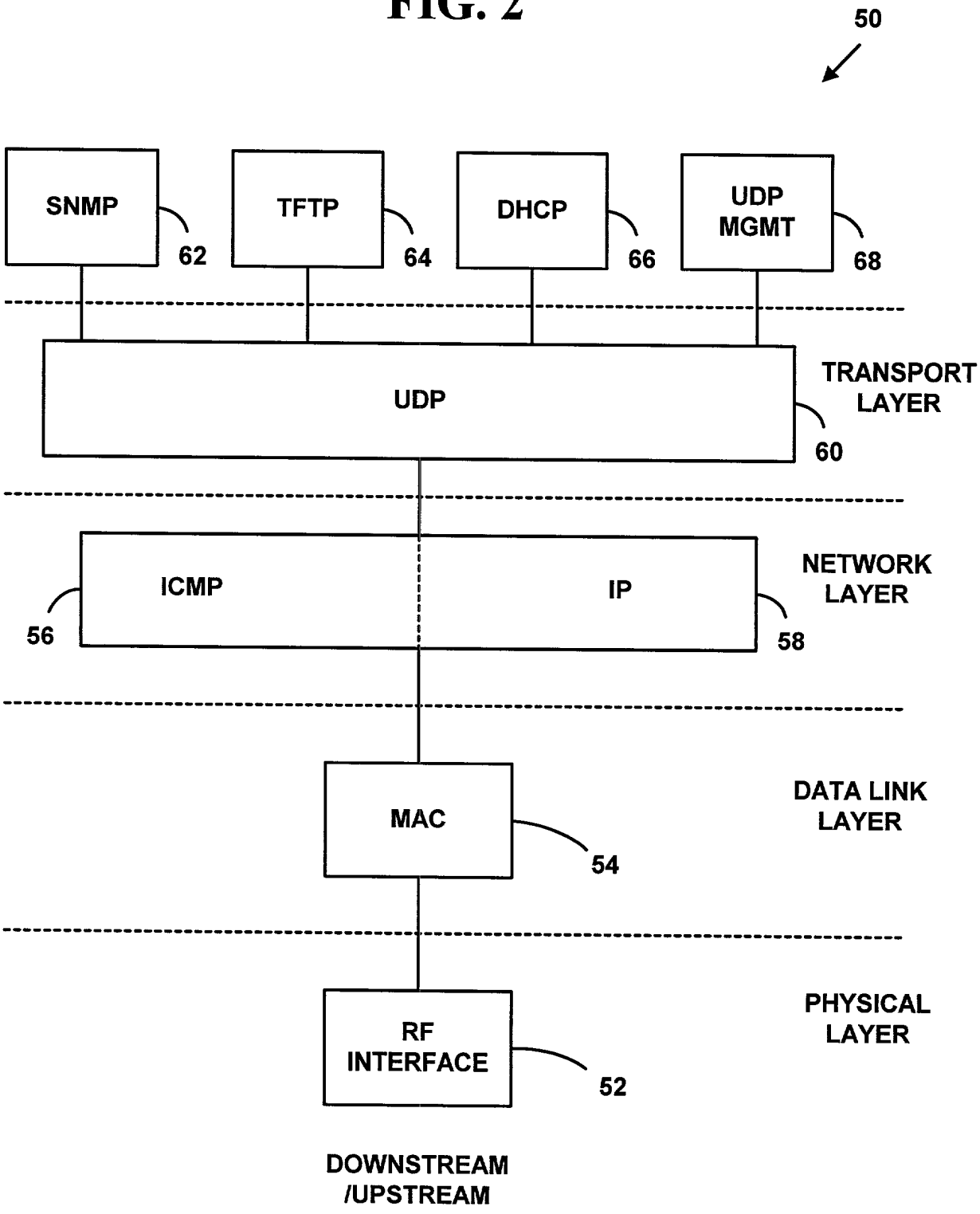

50
SNMP
62
TFTP
64
DHCP
66
UDP MGMT
68
UDP
60
TRANSPORT LAYER
ICMP
56
IP
58
NETWORK LAYER
MAC
54
DATA LINK LAYER
RF INTERFACE
52
PHYSICAL LAYER
DOWNSTREAM /UPSTREAM

FIG. 3

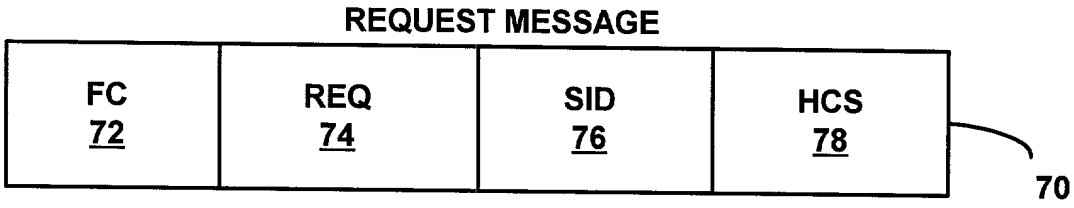

REQUEST MESSAGE
FC
72
REQ
74
SID
76
HCS
78
70

FIG. 4

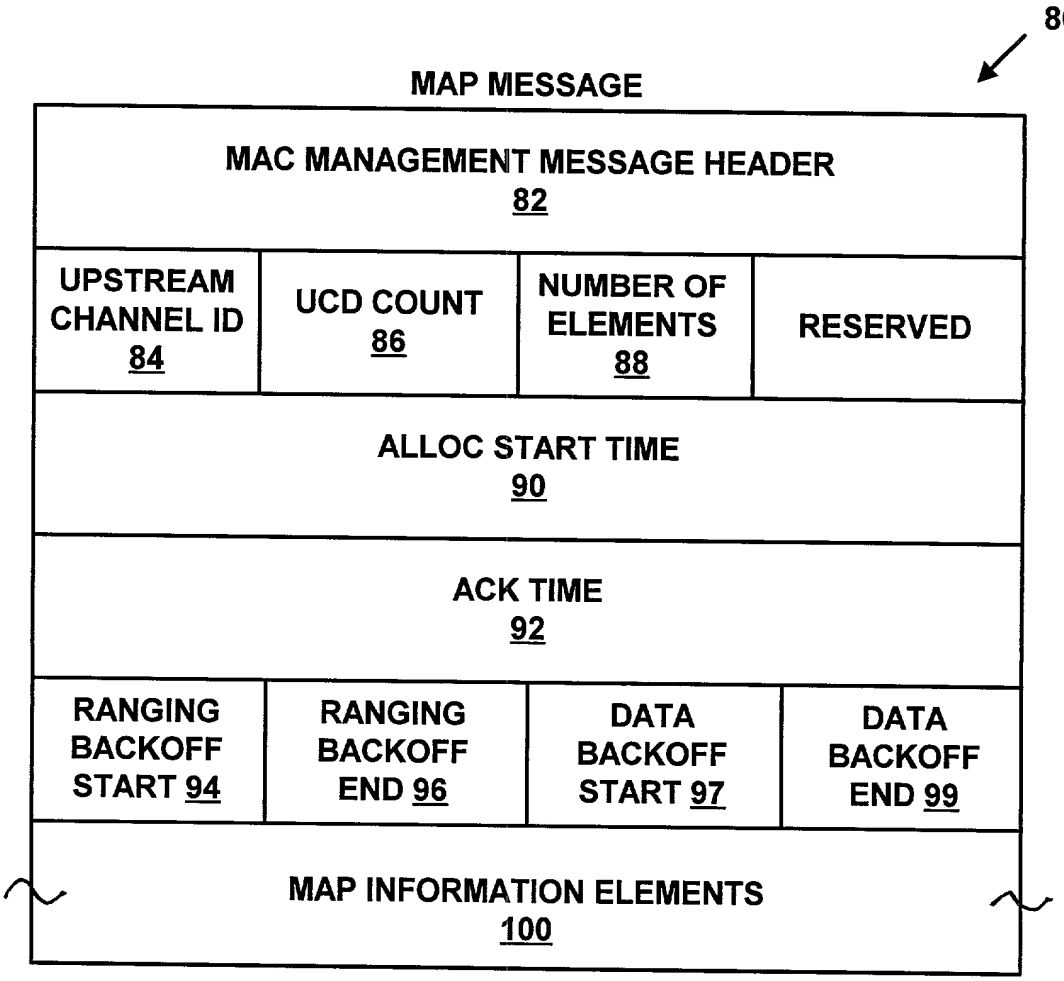

80
MAP MESSAGE
MAC MANAGEMENT MESSAGE HEADER
82
UPSTREAM CHANNEL ID
84
UCD COUNT
86
NUMBER OF ELEMENTS
88
RESERVED
ALLOC START TIME
90
ACK TIME
92
RANGING BACKOFF START 94
RANGING BACKOFF END 96
DATA BACKOFF START 97
DATA BACKOFF END 99
MAP INFORMATION ELEMENTS
100

FIG. 5

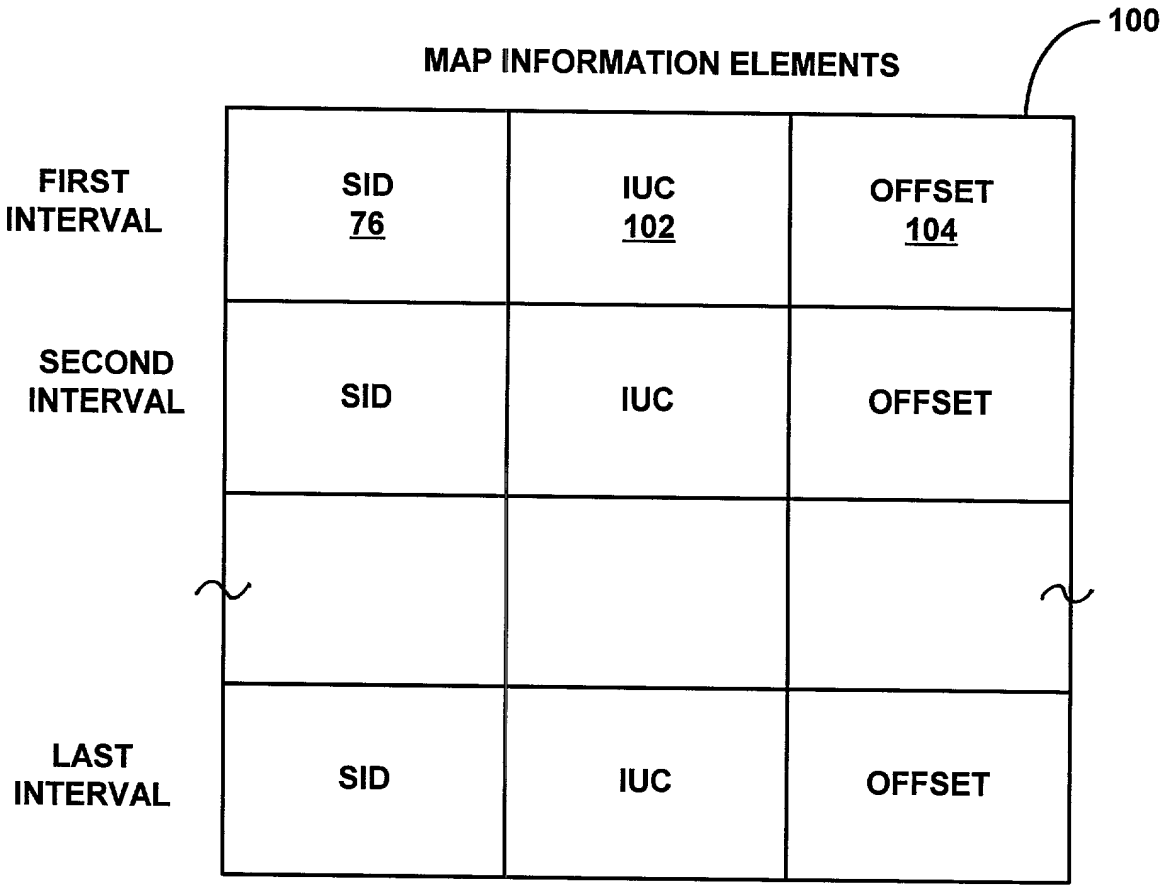

100
MAP INFORMATION ELEMENTS
FIRST INTERVAL
SECOND INTERVAL
LAST INTERVAL
SID
76
IUC
102
OFFSET
104
SID
IUC
OFFSET
SID
IUC
OFFSET

FIG. 6

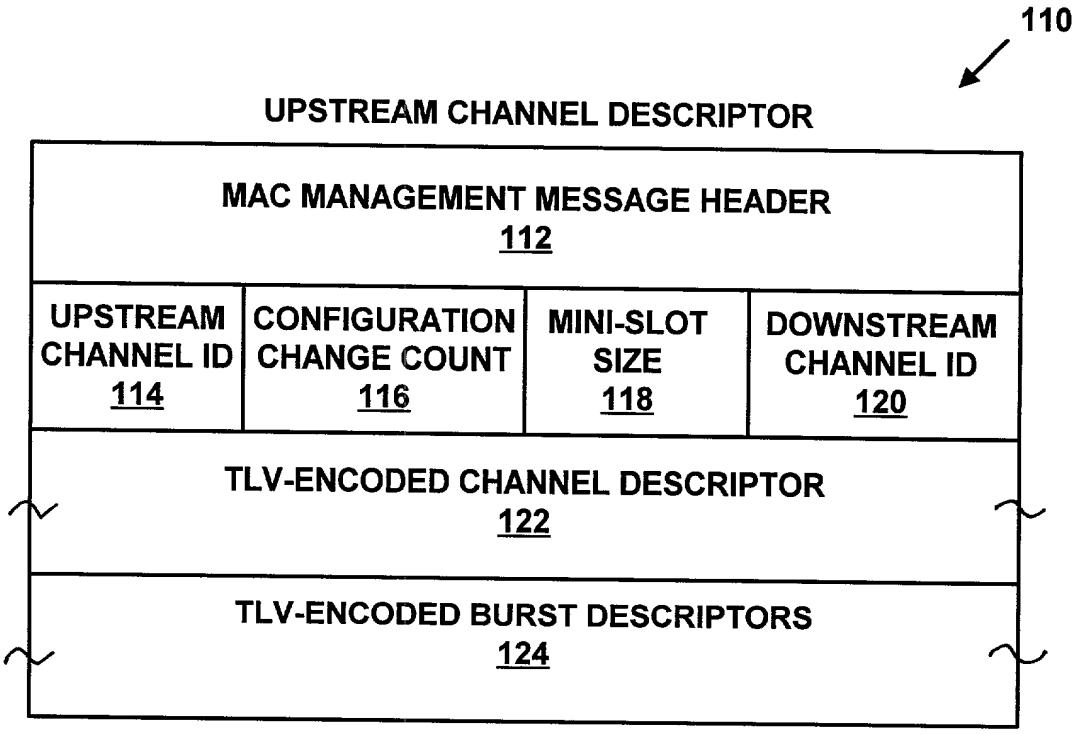

110
UPSTREAM CHANNEL DESCRIPTOR
MAC MANAGEMENT MESSAGE HEADER
112
UPSTREAM CHANNEL ID
114
CONFIGURATION CHANGE COUNT
116
MINI-SLOT SIZE
118
DOWNSTREAM CHANNEL ID
120
TLV-ENCODED CHANNEL DESCRIPTOR
122
TLV-ENCODED BURST DESCRIPTORS
124

FIG. 7

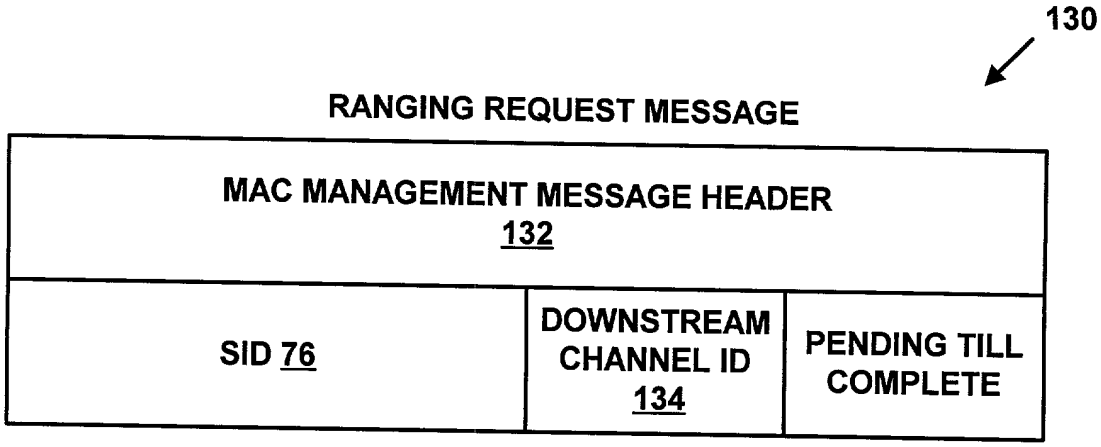

130
RANGING REQUEST MESSAGE
MAC MANAGEMENT MESSAGE HEADER
132
SID 76
DOWNSTREAM CHANNEL ID
134
PENDING TILL COMPLETE

FIG. 8

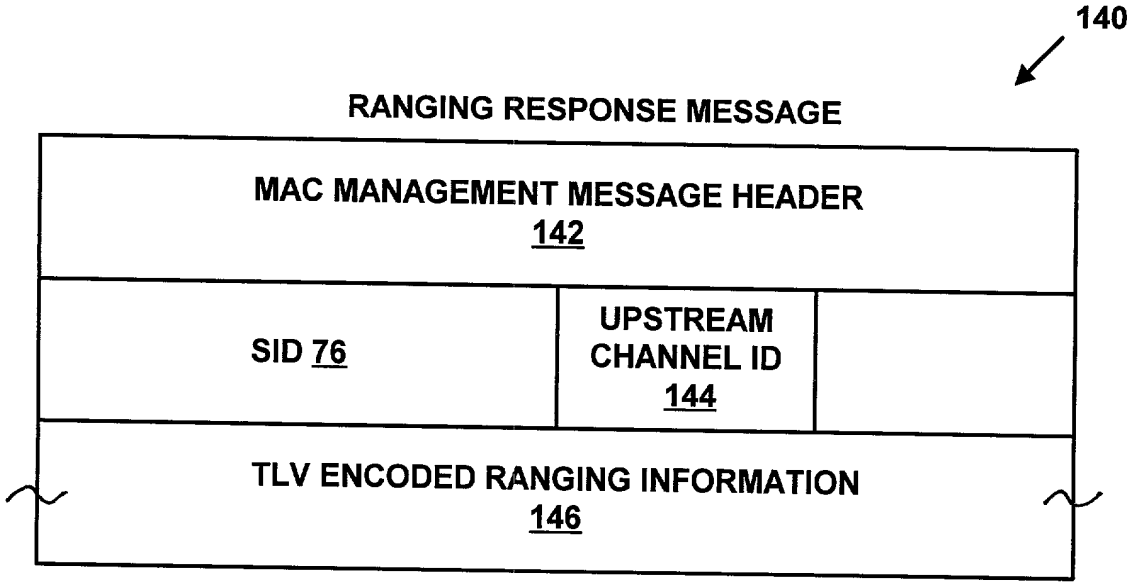

140
RANGING RESPONSE MESSAGE
MAC MANAGEMENT MESSAGE HEADER
142
SID 76
UPSTREAM CHANNEL ID
144
TLV ENCODED RANGING INFORMATION
146

FIG. 9A

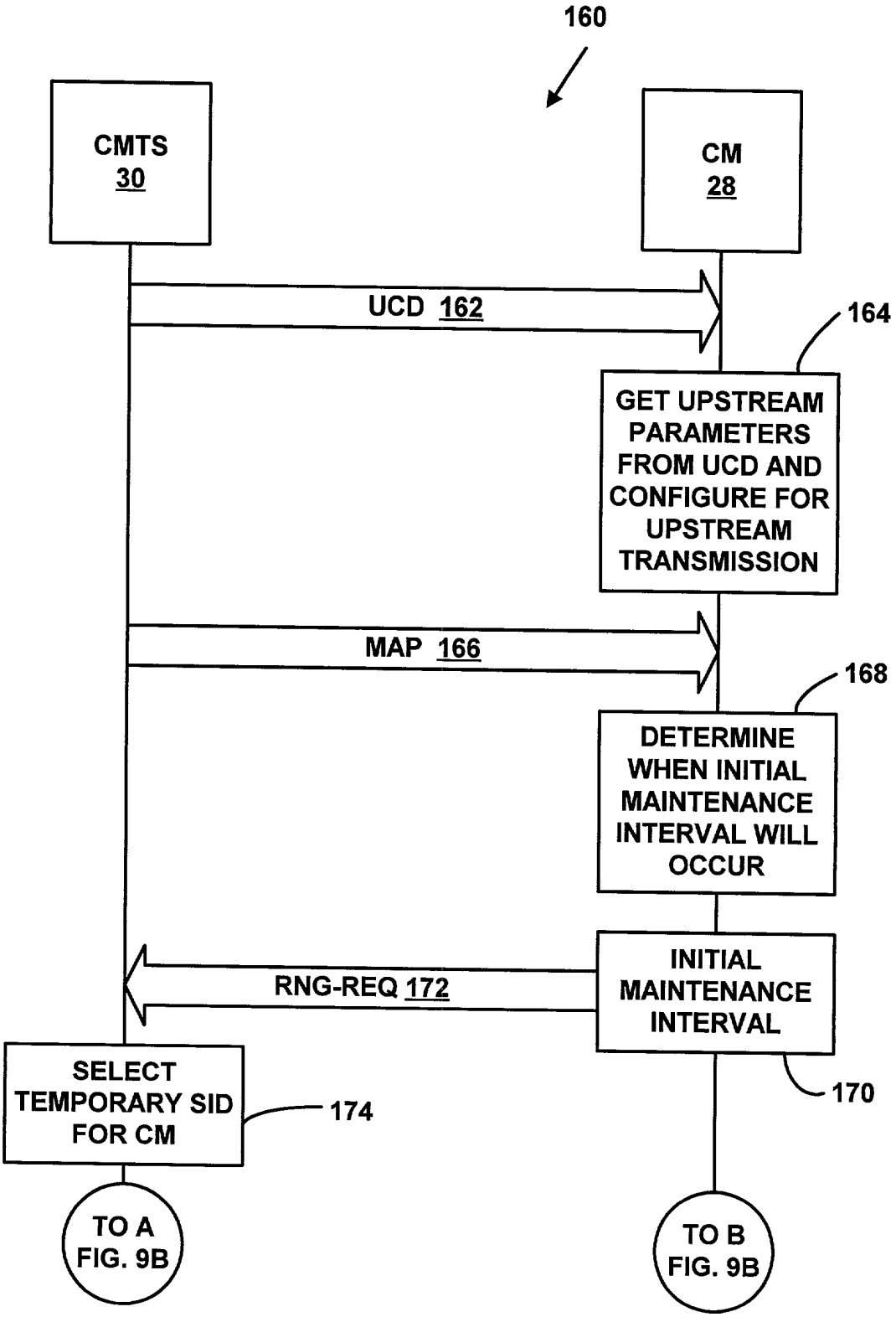

160
CMTS
30
CM
28
UCD 162
164
GET UPSTREAM PARAMETERS FROM UCD AND CONFIGURE FOR UPSTREAM TRANSMISSION
MAP 166
168
DETERMINE WHEN INITIAL MAINTENANCE INTERVAL WILL OCCUR
INITIAL MAINTENANCE INTERVAL
RNG-REQ 172
170
SELECT TEMPORARY SID FOR CM
174
TO A FIG. 9B
TO B FIG. 9B

FIG. 9B

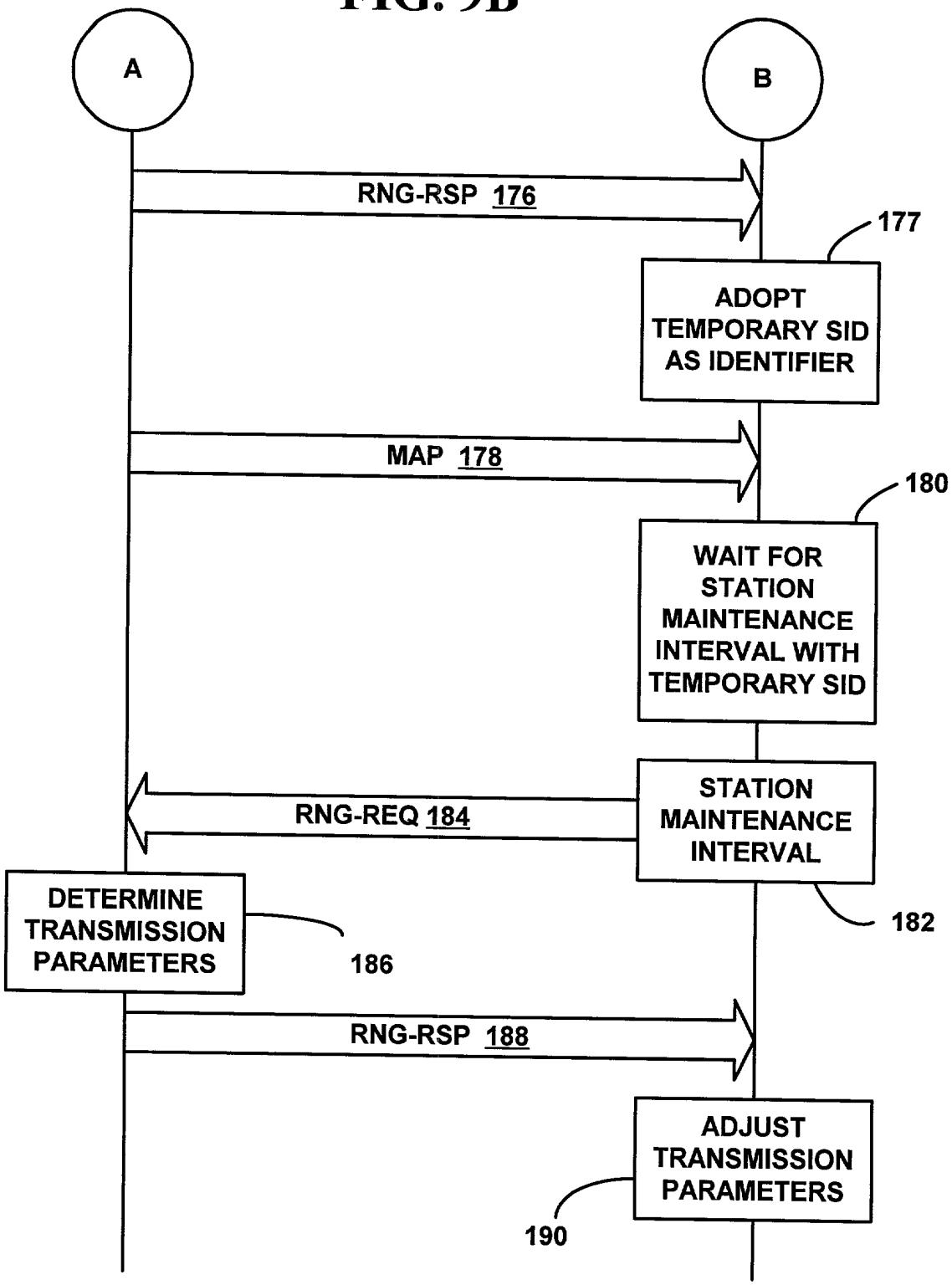

A
B
RNG-RSP 176
177
ADOPT TEMPORARY SID AS IDENTIFIER
MAP 178
180
WAIT FOR STATION MAINTENANCE INTERVAL WITH TEMPORARY SID
STATION MAINTENANCE INTERVAL
RNG-REQ 184
182
DETERMINE TRANSMISSION PARAMETERS
186
RNG-RSP 188
ADJUST TRANSMISSION PARAMETERS
190

FIG. 10

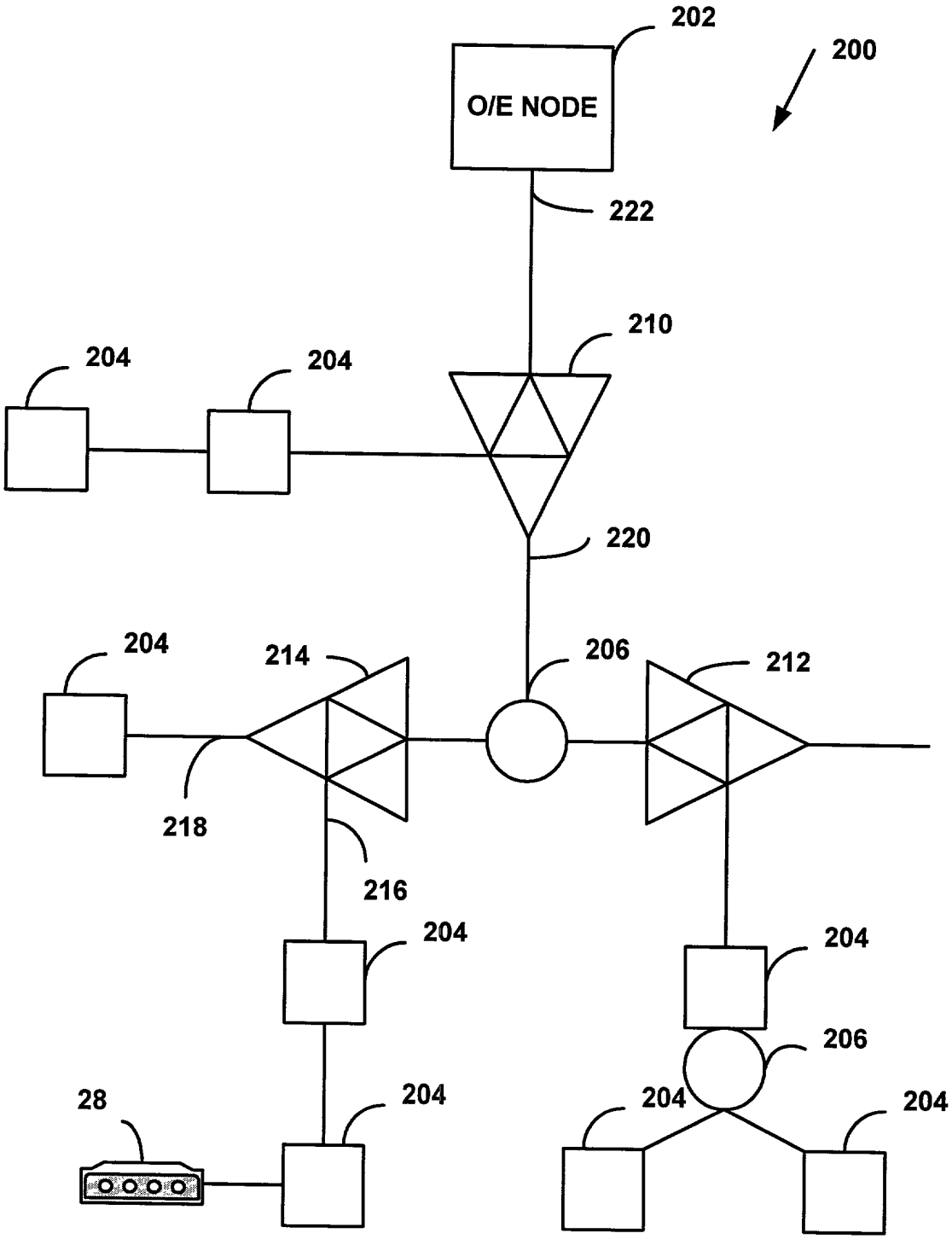

202
200
O/E NODE
222
210
204
204
220
204
214
206
212
218
216
204
204
206
28
204
204
204

FIG. 11

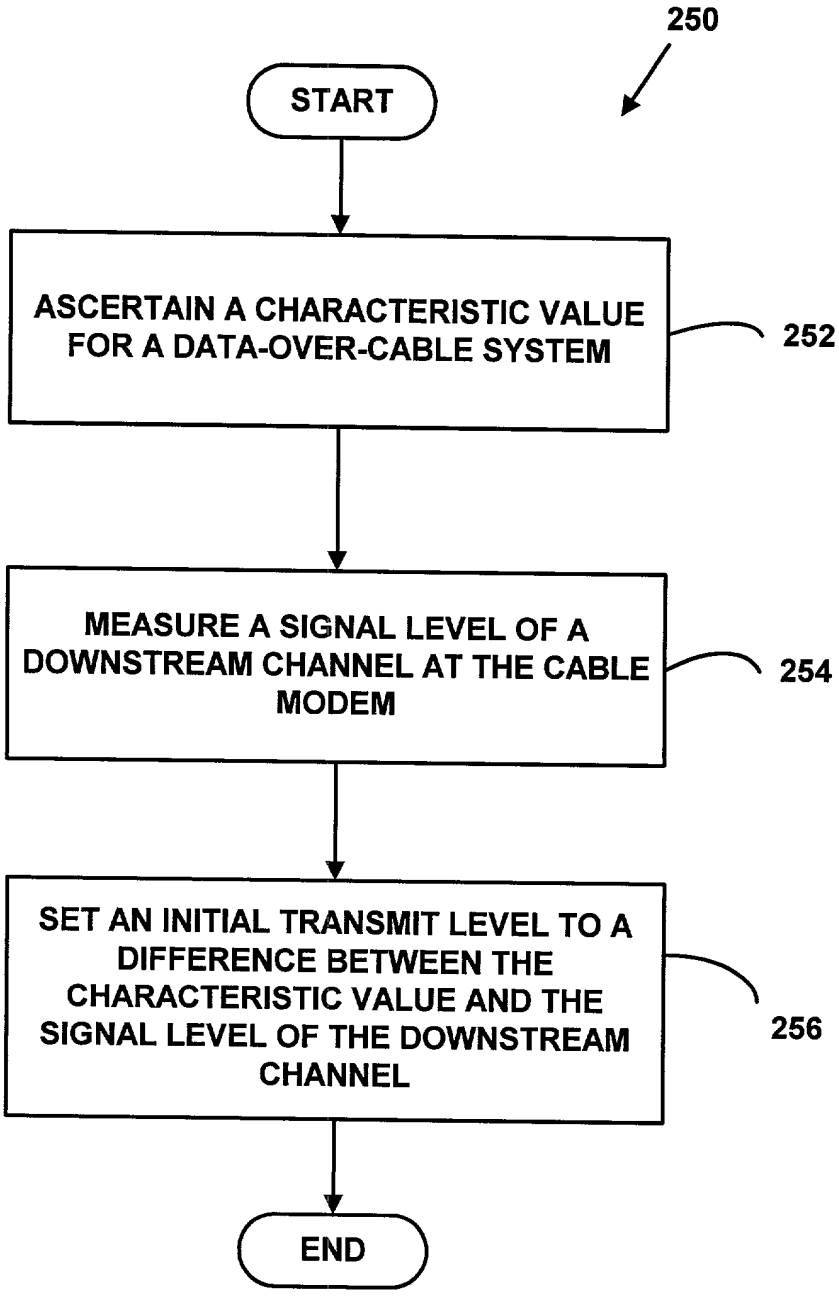
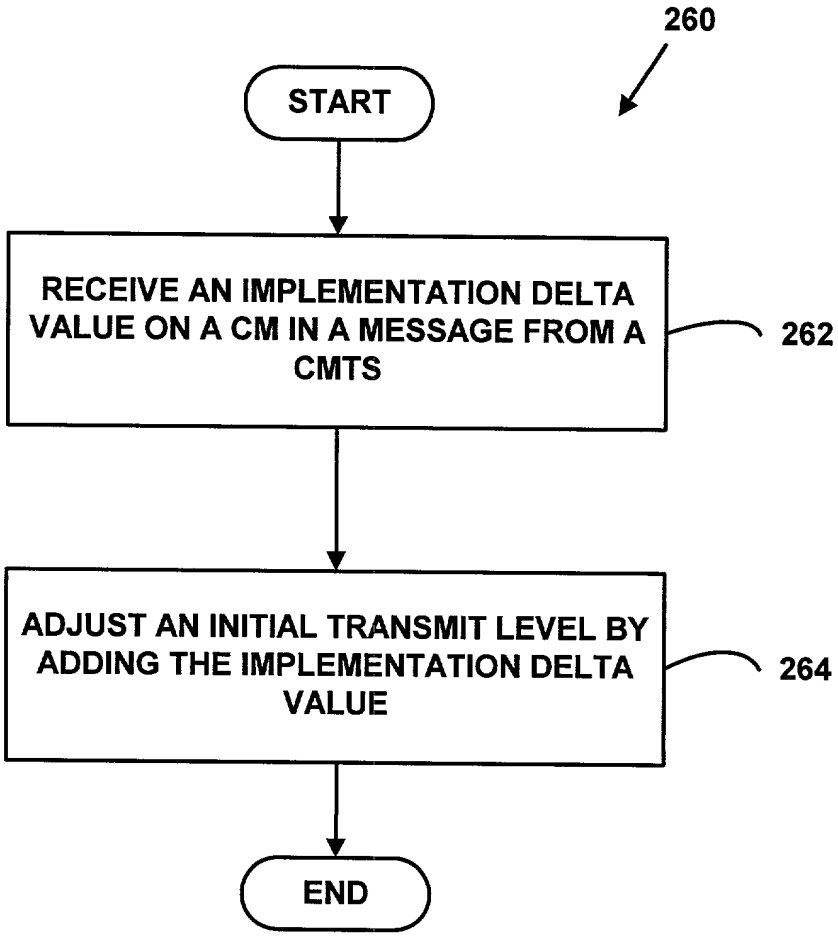

250
START
ASCERTAIN A CHARACTERISTIC VALUE FOR A DATA-OVER-CABLE SYSTEM
252
MEASURE A SIGNAL LEVEL OF A DOWNSTREAM CHANNEL AT THE CABLE MODEM
254
SET AN INITIAL TRANSMIT LEVEL TO A DIFFERENCE BETWEEN THE CHARACTERISTIC VALUE AND THE SIGNAL LEVEL OF THE DOWNSTREAM CHANNEL
256
END

FIG. 12


260
START
RECEIVE AN IMPLEMENTATION DELTA VALUE ON A CM IN A MESSAGE FROM A CMTS
262
ADJUST AN INITIAL TRANSMIT LEVEL BY ADDING THE IMPLEMENTATION DELTA VALUE
264
END